

Researchers Grow Disease-Fighting Cells

STS-90 Carries Microgravity Program Medical Project

by Bob Thompson

A Microgravity Research Program experiment scheduled for launch aboard Space Shuttle Columbia on Thursday may help researchers to gain new understanding of human renal and bone marrow cells and tissues — opening the door to possible treatments for life-threatening renal diseases and illnesses that attack the body's immune system.

Working in a small experiment facility onboard Columbia called a bioreactor, NASA scientists will grow renal cells that produce hormones needed by patients with kidney disease, AIDS or undergoing cancer chemotherapy.

Also, researchers will grow immune cells that are found in blood, bone marrow and immune systems. Immune cells are responsible for fighting diseases and are often needed by patients undergoing chemotherapy, radiation therapy or diseases of the immune system.

The bioreactor facility is the size of a home sewing machine and grows living cells in a small thermos-size bottle spinning lengthwise. By conducting research aboard the Space Shuttle orbiting in microgravity or the near-weightless environment of

space, scientists can make advancements that are not possible on the ground. Because of Earth's gravity, most cell growth experiments tend to grow in a flat layer only one cell thick, offering scientists limited insight into how cells work together.

However, by using a bioreactor on Earth to spin the growing cells, researchers can lessen gravity's negative effect — producing three-dimensional tissues that grow in a more natural manner. Aboard a spacecraft orbiting in near-weightlessness, the bioreactor works even better — producing cells that are more healthy and have greater mass. This is a striking change from the pancake shapes of cell cultures normally grown on Earth.



The bioreactor flew aboard the Shuttle in July 1995 and July 1997. The experiment facility has also played a significant role in microgravity research conducted aboard the Russian space station Mir, flying on two separate missions for months at a time.

NASA's bioreactor research program is providing new understanding of many diseases, including AIDS and the Ebola virus. It is being used to study cancer of the skin, prostate, ovary, breast, bone and colon. Bioreactor findings are helping to explain

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Great Moon Buggy Race Scheduled for April 18

NASA's 5th Annual "Great Moon Buggy Race" is set to begin at 10 a.m. April 18 at the U.S. Space & Rocket Center. Teams representing 15 colleges and high schools from across the country will participate in this event challenging students in creative engineering and cooperative teamwork. Students build and race their own versions of a "moon buggy," modeled after NASA's Lunar Roving Vehicle. All NASA Civil Service employees will receive free admission to the U.S. Space & Rocket Center on April 18 by presenting their MSFC identification badge. Employees are welcome to bring immediate family members (spouse and children under 21).

Horne to Serve as North Alabama Science Center Executive Director

JD Horne, assistant director for Marshall's Center Operations Directorate, has been selected to serve in a loaned executive program for the next year as executive director of the North Alabama Science Center.

The purpose of the center, which is located temporarily at



JD Horne

Calhoun Community College, is to provide a first class, hands-on facility designed to stimulate children's continued interest in studying the physical sciences, technology and math.

Horne joined the Marshall Center in 1975 after serving 20 years in the U. S. Army, where he commanded several aviation organizations.

Since that time he has held continuous positions of responsibility at Marshall including chief, Property Management Division; deputy director, Management Operations Office; director, Executive Staff, and director, Education Programs Office.

Theme Focuses on 'Clean Water for Future Generations'

by **Paul Luz**

Earth Day is a day set aside to promote Ecology, encourage respect for life on Earth, and highlight the problem of pollution. Marshall Center observes Earth Day every year on April 22. Our theme for Earth Day '98 is "Clean Water for Future Generations," in recognition of the Clean Water Act.

The Act, passed in 1977, makes it illegal to discharge pollutants from a point source into navigable waters without a permit. The Clean Water Act amendments of 1977 were aimed at toxic pollutants. In 1987, the Clean Water Act was reauthorized and focused on sewage treatment plants, toxic pollutants, and authorized citizen suit provisions.

NASA officially began observing Earth

Day when President George Bush signed Executive Order 12780 in 1991 and decreed that "Federal agencies promote cost-effective waste reduction and recycling of reusable materials." NASA is now operating

under Executive Order 12873, signed by President Bill Clinton. The Marshall

Center began recycling paper in November 1989 and added aluminum cans and cardboard in July 1991 after Center Director Jack Lee signed Charter Number 3-32 "to establish a Centerwide focus for the development, implementation, and

management of a recycling program."

A monthly average of 25 tons of white paper (equivalent to about 429 trees), 932 pounds of aluminum cans (approximately 27,930 cans), and 2 tons of cardboard are



recycled at Marshall per month. But that's not all.

Today, Marshall continues to "Rethink, Reuse, Reduce, and Recycle" at least 13 different items — including aluminum cans, lead cell batteries, cardboard, cooking oil, foam packing peanuts, grass clippings, laser toner cartridges, motor oil and oil filters, scrap metal, telephone books, tires, trees (chipped for mulch), and white paper.

Marshall's recycling efforts and future plans are accessible via the World Wide Web at http://www.recycle.msfc.nasa.gov/earth_day/earth_day.html.

Earth Day events at Marshall include the Earth Day logo contest that was won by Maureen Hunt of DP Associates; a recycling display in Bldg. 4200 April 20-24 with recycling information, literature, and recycled sculptures and artwork by pre-school children who attend the Marshall Child Development Center; the "Spot an Environmentalist" contest for Marshall employees and on-site contractors; and a tree-planting ceremony.

Charles Horn, Chief of the Water Division at the Alabama Department of Environmental Management, and Jeff Luvall of MSFC's Global Hydrology & Climate Center, will speak at Marshall's Earth Day tree planting ceremony set for 10 a.m., April 22, in front of the Child Development Center, Bldg. 4494. The ceremony is open to the public.

This year's Earth Day tree is a Water Oak (*Quercus nigra*), a native American tree.

MSL-1 Team Receives Mission Success Award at 41st Goddard Memorial Event

The Eagle Manned Mission Success Award was presented to Marshall employee Allen Bacskey recently at the 41st Goddard Memorial Awards Banquet in Washington, D. C. Bacskey



Allen Bacskey

accepted the award on behalf of the Microgravity Science Laboratory (MSL-1) Reflight Readiness Team.

Bacskey, who was chief engineer for MSL-1, was one of three recipients of the award that recognized agency-wide team work between the Kennedy, Johnson and Marshall Centers.

The award is presented annually in recognition of the individual, or group of specifically named individuals, who by direct involvement in mission development, has made a significant contribution to U.S. manned space

flight mission success.

Bacskey was cited for "outstanding dedication and performance in the record-setting three-month turnaround of payloads and the Space Shuttle Columbia from Mission STS-83 to STS-94 that resulted in the success of the Marshall-managed MSL-1 Spacelab mission(s)."

The effort at Marshall required to complete the quick processing of MSL-1 between STS-83 and STS-94 involved support from the experiment providers, the Payload Mission Integration Contractor (Teledyne Brown Engineering), Spacelab Integration Contractor (McDonnell Douglas Aerospace) and civil service employees working the mission, Bacskey said.

Bacskey is currently working as the project engineer for the SPace Readiness Coherent Lidar Experiment (SPARCLE). SPARCLE will be the first Lidar System in space that utilizes a coherent detection process to measure atmospheric wind speed and direction in the 0-20 km (0-12.5 mi.) altitude range.

Upcoming Events

Volunteers Needed For Distribution of Marshall's Open House Flyers

The Marshall Center Open House is scheduled for 9 a.m. to 6 p.m. May 16. The Open House Committee is seeking your help in spreading the word about the Open House to your friends and neighbors in the local community.

If you would like to help distribute flyers, visit the Open House website or contact Michele Fowler by e-mail or call 4-0392

New Alabama Law Exempts Buyouts From State Tax

Under new legislation passed by the State of Alabama, separation incentives or buyout payments for amounts up to \$25,000 are exempt from state income tax.

This exemption applies to all buyouts taken in 1998 and only to employees required to file an Alabama income tax return. Call Edwina Bressette at 4-8115 with questions or concerns.

Bioreactor Experiment

Continued from page 1

kidney failure and the location of drug receptor sites — the chemical pathways into our bodies. Scientists are also using the bioreactor to study the heart, lungs, circulatory system, immune system, digestive system, dentistry, neurology and allergies.

Research using the bioreactor is part of NASA's Biotechnology Cell Science Program, directed by Dr. Neal Pellis at Johnson Space Center in Houston, Texas. The Cell Science Program involves more than 100 scientists, engineers and support people and is a part of the Biotechnology Research Office managed by Marshall's Microgravity Research Program.

The bioreactor experiment is expected to be used for further studies aboard the International Space Station, an orbiting laboratory scheduled for first element launch this year.

Full Cost Training Provides Guidance

Full Cost is a concept that ties all Agency costs (including civil service personnel costs) to major activities. All cost must be associated with an activity or project and NASA will use projects as cost objectives for managing, budgeting, and accounting.

In contrast to the current approach in which civil service personnel costs and certain other costs of an institutional nature are not tied to projects, under the Full Cost approach all costs will be associated with projects. Full Cost is also consistent with sound business practice and recent legal and administrative guidance, including the 1990 Chief Financial Officer's Act, 1993 Government Performance and Results Act, 1993 National Performance Review, Federal Financial Management Improvements Act of 1996, and NASA's 1995 Zero Base Review. Agency implementation of the

full cost initiative is targeted for October 1, 1999. However, because Marshall Center is a Full Cost prototype center, this concept will be implemented at Marshall this year. A special course is being offered to provide full cost guidance for anyone involved in resources in any capacity. This eight-hour course, held from 8 a.m.-4:30 p.m., will be taught by Marshall personnel who have been intimately involved with the development of Full Cost at Marshall. There are 25 spaces available in each session. Schedule, date and locations are:

April 27, 28, 29: Sparkman Center, Martin Rd, Bldg. 5304, 3rd Fl., Rm. 4370
May 5, 6: Building 4200, Room G19
May 7: Building 4200, Room G21
June 9, 10, 11: Sparkman Center, Martin Road, Bldg. 5304, 3rd Fl. Rm. 4337/40
June 23, 24, 25: Sparkman Center, Martin Rd., Bldg. 5304, 3rd Fl., Rm. 4342

CFC Seeks 1998 Campaign Slogan Entries

Slogans are now being solicited for the 1998 Tennessee Valley Combined Federal Campaign (CFC). The winning slogan will be used as a planning theme for the 1998 CFC Campaign. Recommended slogans will be submitted to the Local Federal Coordinating Committee for final selection. The winner will receive recognition and a prize awarded by the MICOM Commanding General and

Tennessee Valley CFC Executive Chairperson. Slogans should be short and concise. Examples from past years are: Hope Is In Our Hands (1997) Giving Hope To Others (1996) Submit entries no later than May 6 to: Cathy Nicholson, Executive Chairperson, 1998 Combined Federal Campaign RA02/Bldg. 4202, or e-mail entries to: cathy.nicholson@msfc.nasa.gov.



Marshall employee and Project Laser volunteer Carl Holden listens while Taylor Griswold of Trinity Presbyterian School in Montgomery explains his science project called "The Dancing Ant" during the 1998 Alabama Science and Engineering Fair last week. Holden was one of several volunteers from Marshall who serve as judges for the event.

Photo by Emmett Given

Employee Ads

Miscellaneous

- ★ Super Nintendo w/1 game, 2 controllers, Gameboy adapter, \$75; Gameboy w/2 games, \$35 or \$100 for all. 882-9785
- ★ Modem, Supra express 28.8 for MacIntosh, external, \$35. 882-1780
- ★ Cat playpen, never used, 36" w x 24" D x 48" H, collapsible, two perches, paid \$140, sell for \$100. 772-1844
- ★ White Broyhill bedroom suite, 4 pieces, \$200. 539-9023
- ★ Pacific Safari, 20-inch wheel girls bicycle, purple, \$75. 881-7954
- ★ IBM Thinkpad 365 x D, fully loaded hardware and software, \$1,000. 882-2337
- ★ AKC registered lab puppies black or chocolate, 5 weeks on 4/5/98, \$200-225. 851-8188 or 423-5734
- ★ 8MB and 16MB EDO 3.3V DIMMS for APS, Starmax, Power Mac 4400, MacOS computers, \$20, \$30. 539-8406
- ★ "Heartland" dinnerware accessories, includes canister set, half price, \$135 for all. 306-0365
- ★ German GEW 88 commission rifle with reproduction sling, \$125. 883-1874
- ★ MTD lawn tractor 12H.P. 38" deck, \$300; power lift for outboard motor, \$250. 837-4136
- ★ Hunter green love seat and chair, \$200 o.b.o. 721-1303
- ★ Craftsman push mower 3.5HP with grass catcher, \$90. 883-1874
- ★ "Crossgil" country blue & cream comforter, bedskirt, and pillow shams, \$35. 306-0365
- ★ Wood sandbox 47" w x 74" l g. x 10.5" h, \$20; undercounter dishwasher, \$50; clothes washer, \$100; Basketball goal w/pole, \$60. 881-6040
- ★ Oak pub table with 4 upholstered oak chairs, \$300. 721-9107 after 5 p.m.
- ★ Gaspar 17 ft. runabout, 115 HP Johnson w/power trim, walk-thru windshield, depth finder, \$1,450. 883-8257
- ★ Murray mulching lawnmower 1994, with rear bag, bent crank shaft, make offer. 895-8363
- ★ Sofa, cocktail, and end tables, solid maple with burl inlay, walnut finish, \$500. 859-9520
- ★ Country style blue sofa, \$150; wood with glass inset coffee and end table, \$75. 722-0777
- ★ Baby crib w/mattress, \$80; playpen, \$25; swing, \$20; monitor, \$20; strollers (2), \$20 & \$10; highchair, \$20. 883-2555
- ★ Three short sleeve nursing shirts, \$15 ea.; nursing housecoat and gown, \$15, size small. 883-9361

Vehicles

- ★ 1993 Nissan King Cab SE (V6) pickup, 2wd, 50K miles, 5-spd, sunroof, \$9,995. 895-0160
- ★ 1989 Honda Prelude, 5-spd, A/C, PS, moonroof, AM/FM cassette, one owner, \$4,500. 895-8363

- ★ 1991 Jeep Laredo 4x4, 4.0L, AT/PW/PL, 112K miles, hunter green, \$7,500. 230-0503
- ★ 1985 Ford Ranger 4x4, 5-spd, V6, new tires, camper top, 155K miles, \$3,000. 464-0941
- ★ 1989 Mustang LX hatchback, 4-cyl., automatic, 126K miles, PW/PB, alloy wheels, \$2,250 firm. 753-2278
- ★ 1985 Nissan 200SX, 5-spd, V6, PB, A/C, moonroof, needs work, 147K miles, \$1,200 o.b.o. 883-2063
- ★ 1984 Buick wagon, diesel, PS/PB, A/C, rebuilt valves/starter/transmission, 111K miles, \$900 o.b.o. 883-2063
- ★ 1988 Ford F-150 XLT Lariat, 2WD, automatic, custom shell, 130K miles, \$3,800. 355-5016
- ★ 1993 Honda Accord LX, 5-speed, 88K miles, \$7,900. 427-8046

Wanted

- ★ 12 volt DC TV/VCR or TV/VCP for rent or sell. 851-2929

Center Announcements

- ✦ **MESA** — The Marshall Engineers and Scientists Association, IFPTE Local 27 will meet April 23 at 11:30 a.m. in the MESA Office, room C-105, in the northeast end of Bldg. 4471. Refreshments will be served and all members are invited.
- ✦ **Lunch & Learn** — Marshall's Employee Assistance Program will offer our next Lunch & Learn Seminar on April 16, from 12 noon to 12:45 p.m. in the Morris Auditorium. Dr. Martha Atkinson, a Huntsville psychologist will assist participants in a self-evaluation of how they manage their major resources, not only at work, but also in their personal lives. All civil service and on-site contractor and family members are invited to attend.
- ✦ **AGA** — The North Alabama Chapter of the Association of Government Accountants will meet April 16 at the Marriott at the Space and Rocket Center. Social begins at 5:30 p.m. and program will start at 6 p.m. Col. Joe Young will speak on "Effective Communication." For reservations, please contact Sandra Julian at 876-2300.
- ✦ **MOO** — The Management Operations Office retirees will meet for breakfast/lunch on April 23 (4th Thursday each month) at the Cracker Barrel in Madison at 10 a.m. In addition to retirees, all present or former MOO employees are welcome. Call 539-0042 if you have any questions.
- ✦ **STOP ABUSE** — Aware of waste, fraud or abuse? Phone the MSFC Office of Inspector General at 544-9188 or send complaints to mail stop M-DI. Confidentiality will be maintained.
- ✦ **NARFE** — The National Association of Retired Federal Employees - Decatur Chapter 736 will meet April 22 at 11 a.m. for lunch and 12 noon for the business meeting. Randall Wilks, MSC; audiologist with Drs. Godwin and Copeland of the

Decatur ENT Associates, will be the speaker.

Meetings are scheduled every 4th Wednesday of each month at the same time and place. For more information, call 773-4826 or 355-2874.

- ✦ **Shuttle Buddies** — The Shuttle Buddies will meet for breakfast April 27 (each 4th Monday) at 9:15 a.m. at Shoney's, University West. For questions call Deemer Self at 881-7757.
- ✦ **Toastmasters International** — The NASA Lunar Nooners Toastmasters Club will meet April 21 at 11:30 a.m. in the 4610 cafeteria conference room. For more information, call Debbie Hagar at 461-4992, or Lee Johns at 544-5142.
- ✦ **Training Opportunity** — The Program/Project Management Initiative announces that the third Project Management Shared Experiences Program course "Creative Approaches in Project Management" will be held April 20-24 at the Ramada Inn Hagerstown, MD. If interested contact Sherry Douglas at 202-554-8677 ext. 27 or e-mail at sdouglas@tadcorps.com.
- ✦ **Public Inquiries** — Please visit the Public Inquiries Office located in Bldg. 4200, room 101. Imagine better disease fighting drugs and medicines, a movie studio where out-of-this world effects won't be just "special effects" and booking your accommodations at a bed and breakfast in space—a place to rest and relax after a round of golf without the effects of gravity. Read about these and more in the Advanced Space Transportation Program brochure. Other publications and handouts related to Marshall and NASA are available.

Thank You

Thank You for your Support — I would like to thank the employees of Marshall for their generosity, cards, gifts, donations of leave and moral support during my recent illness. Being a member of the Marshall "family" has always been a rewarding experience and through the darkness you all brought the light of hope and faith. In particular, I would like to express my gratitude to Ms. Sandy Such for doing an excellent job of covering my duties as lab secretary as well as her own duties as secretary to the Deputy Director during the past few months. Once again, thank you so very much.

Polly Thompson
EP01/Propulsion Laboratory

Job Opportunities

CPP 98-37-PL, Administrative Officer, GS-341-9, Observatory Projects Office. Closes April 16.
Reassignment Bulletin 98-16-JB, AST, Technical Management, GS-801-13, Space Shuttle Projects Office, Solid Rocket Booster Project, KSC Resident Office. Closes April 23.

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